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**DIVISION: 07—THERMAL AND MOISTURE PROTECTION**  
**Section: 07210—Building Insulation**

**REPORT HOLDER:**

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**EVALUATION SUBJECT:**

**BIOBASED 501 SPRAY FOAM INSULATION**

**1.0 EVALUATION SCOPE**

**Compliance with the following codes:**

- 2003 *International Building Code*® (IBC)
- 2003 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)

**Properties evaluated:**

- Surface burning characteristics
- Thermal performance (*R*-values)
- Physical properties
- Attic and crawl space installation

**2.0 USES**

**2.1 BioBased 501 Spray Foam Insulation:**

BioBased 501 Spray Foam insulation is used as a nonstructural thermal insulating material in buildings of Type V-B (IBC) or Type V-N (UBC) construction, and in structures constructed in accordance with the IRC. The insulation is for use in wall cavities, floor assemblies or ceiling assemblies.

**3.0 DESCRIPTION**

**3.1 General:**

BioBased 501 Spray Foam insulation is a spray-applied, semirigid, low-density, cellular polyurethane foam plastic insulation. The foam plastic insulation is produced in the field at a nominal density of 0.50 pcf (8.0 kg/m<sup>3</sup>) by combining a polymeric isocyanurate component A with a resin-based component B. The BioBased 501 Spray Foam insulation components (A and B) shall be stored at temperatures between 60°F (16°C) and 90°F (32°C).

**3.2 Surface Burning Characteristics:**

BioBased 501 Spray Foam insulation, at a maximum thickness of 6 inches (152 mm) and a nominal density of 0.5

pcf (8 kg/m<sup>3</sup>), has a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested in accordance with ASTM E 84 (UBC Standard 8-1).

**3.3 Thermal Performance (*R*-Values):**

BioBased 501 Spray Foam insulation, at a nominal density of 0.5 pcf (8 kg/m<sup>3</sup>), has thermal resistance (*R*-values) of 3.83°F-ft<sup>2</sup>-h/Btu (0.67 °K-m<sup>2</sup>/W) at a 1-inch (25.4 mm) thickness, 6.77 °F-ft<sup>2</sup>-h/Btu (1.19 °K-m<sup>2</sup>/W) at a 2-inch (25.4 mm) thickness, and 13.0 °F-ft<sup>2</sup>-h/Btu (2.29 °K-m<sup>2</sup>/W) at a 4-inch (25.4 mm) thickness.

**4.0 INSTALLATION**

**4.1 General:**

BioBased 501 Spray Foam insulation shall be installed in accordance with the manufacturer's published installation instructions and this report. A copy of the manufacturer's published installation instructions shall be available at all times on the jobsite during installation.

**4.2 Application:**

BioBased 501 Spray Foam insulation shall be spray-applied on the jobsite using a volumetric positive displacement pump to combine the A and B components at a one-to-one ratio, as specified in the manufacturer's published installation instructions. BioBased 501 spray foam insulation shall not be applied in areas that are exposed to a maximum ambient temperature greater than 180°F (82°C). The spray foam insulation shall be applied to substrates that are clean, dry and free of frost, ice, loose debris, or contaminants that will interfere with adhesion of the spray foam insulation. The spray foam insulation shall not be applied in electrical outlet or junction boxes or in direct contact with water or soil. In jurisdictions that have adopted the IRC, in areas where the probability of termite infestation is "very heavy" as determined in accordance with IRC Figure R301.2(6), and when foam plastic insulation is used with wood construction, the foam plastic shall be installed in accordance with IRC Section R320.4.

**4.3 Thermal Barrier:**

BioBased 501 Spray Foam insulation shall be separated from the interior of the building by an approved thermal barrier of 1/2-inch-thick (12.7 mm) gypsum wallboard or an equivalent 15-minute thermal barrier complying with, and installed in accordance with, IBC Section 2603.4, IRC Section R314.1.2, or UBC Section 2602.4, as applicable, except when installed in attics and crawl spaces.

In attics and crawl spaces, BioBased 501 Spray Foam insulation may be installed where entry is made only for service of utilities and shall be installed in accordance with IBC Section 2603.4.1.6, IRC Section R314.2.3, or UBC Section 2602.4, as applicable. An ignition barrier consisting of either 1.5-inch-thick (38 mm) mineral fiber insulation; or a

0.25-inch-thick (6.4 mm) wood structural panel, particle board or hardboard; or a 0.375-inch-thick (9.5 mm) gypsum wallboard; or a corrosion-resistant steel having a base-metal thickness of 0.016 inch (0.4 mm); or some other approved material, shall be installed in a manner so that the spray foam insulation is not exposed. The protective covering shall be consistent with the requirements for the type of construction required by the applicable code. Ventilation of the attic or crawl space shall be provided in accordance with the applicable code.

## 5.0 CONDITIONS OF USE

The BioBased 501 Spray Foam insulation described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The spray-applied foam insulation shall be installed in accordance with the manufacturer's published installation instructions, this report and the applicable code. If there are any conflicts between the manufacturer's published installation instructions and this report, this report shall govern.
- 5.2 The spray-applied foam insulation shall be limited to interior use in Type V-B construction under the IBC, to Type V-N construction under the UBC, and to structures constructed in accordance with the IRC.
- 5.3 The spray-applied foam insulation shall not exceed a maximum thickness of 6 inches (152 mm), and a nominal density of 0.5 pcf (8 kg/m<sup>3</sup>).
- 5.4 The spray-applied foam insulation shall be applied by contractors certified by BioBased Systems, LLC.
- 5.5 The spray-applied foam insulation shall be protected from weather during and after installation.
- 5.6 A vapor retarder may be required by the code official in exterior walls in accordance with IBC Section 1403.3, and in exterior walls, floors and roof/ceilings in accordance with IRC Sections R318.1 and R703.2.
- 5.7 The spray-applied foam insulation shall be separated from the building interior by an approved thermal barrier

complying with, and installed in accordance with, IBC Section 2603.4, IRC Section R314.1.2, or UBC Section 2602.4, as applicable, except when installed in attics and crawl spaces as described in Section 4.3 of this report.

- 5.8 In jurisdictions that have adopted the IRC, when spray-applied foam insulation is installed in buildings of wood construction, the insulation shall not be installed on the exterior of foundation walls or below floor slabs on grade or in contact with the soil. The spray-applied foam insulation shall have a clearance above grade and exposed earth of 6 inches (152 mm) or greater.
- 5.9 The use of the spray-applied foam insulation as a structural component or nailing base has not been evaluated and is outside the scope of this report.
- 5.10 The use of the spray-applied foam insulation as fire-blocking or draft-stopping has not been evaluated and is outside the scope of this report.
- 5.11 The spray-applied foam insulation components A and B are produced in Rogers, Arkansas, under a quality control program with inspections by Omega Point Laboratories, Inc. (AA-657).

## 6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated February 2005.

## 7.0 IDENTIFICATION

The A and B components for BioBased 501 Spray Foam insulation shall be packaged in 55-gallon (208 L) drums that identify the manufacturer's name (BioBased Systems, LLC) and address; the date of manufacture or the lot number; the product name (BioBased 501 Spray Foam); the product type (Component A or Component B); the installation instructions; the density; the flame-spread and smoke-developed indices; the thermal-resistance *R*-values (when applicable); the name of the inspection agency (Omega Point Laboratories, Inc.); and the evaluation report number (ESR-1383).